

REMARKS

Claims 1-15 are pending in the above application.

The Oath/Declaration stands objected to as not identifying the city and either state or foreign residence of each inventor. The Oath/Declaration also stands objected to as not identifying the mailing or postal address of each inventor.

Claims 14 and 15 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend upon any other multiple dependent claim.

Claims 3, 8, and 11 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Specifically, the Examiner objects to the use of trademarks/tradenames in these claims (PE412 in Claim 3; Duracet 675-01 in Claim 8; and Carbopol 941 and 981 in Claim 11).

Claims 1-15 stand rejected under 35 U.S.C. 103(a) as unpatentable over Reese (U.S. Patent No. 4,546,880) in view of Manufacturing Technology of Continuous Glass Fibers (3rd Edition, 1993).

Finally, claims 1-15 stand rejected under 35 U.S.C. 103(a) as unpatentable over Temple (U.S. Patent No. 5,130,197) in view of Eichorn (U.S. Patent No. 4,596,736).

Regarding the Oath/Declaration, Applicants will submit a substitute Oath/Declaration that addresses the Examiner's concerns listed above. Consideration of the new Oath/Declaration is respectfully requested.

Regarding the Examiner's objection to claims 14 and 15, Applicants respectfully traverse the Examiner's objection. Claims 14 and 15 are not multiple dependent claims, contrary to the Examiner's determination. As stated in 37 CFR 1.15(c) and MPEP

608.01(n), "a multiple dependent claim is a dependent claim which refers back in the alternative to more than one preceding independent or dependent claim." (Emphasis added). Alternative claiming is illustrated in examples in section 608.01(n) and generally consists of phrases such as "a gadget according to claim 1 and 2 further comprising". Claims 14 and 15 do not refer back to preceding claims in the alternative. Instead, claim 14 refers back to claim 13, which refers back to claim 2, which refers back to claim 1, thus further narrowing claim 1. Similarly, claim 15 refers back to claim 14, which refers back to claim 2, which refers back to claim 1, thus further narrowing claim 1. Reconsideration of claims 14 and 15 is respectfully requested.

Regarding the rejection of claims 3, 8 and 11, Applicants respectfully traverse the Examiner's rejection. Section 608.01(v) indicates that names used in trade are permissible in patent applications if (A) their meanings can be established by an accompanying definition which is sufficiently precise and definite to be made a part of the claim, or (B) In this country, their meanings are well-known and satisfactorily defined in the literature. Here, conditions (A) and (B) are both met with respect to claims 3, 8 and 11, as the specification lists both the chemical name and the manufacturer. With respect to claim 3, PE-412 is listed in the specification on page 5, lines 6-7, as an emulsified polyester resin available from OC Anderson. With respect to claim 8, DURACET 675-01 is listed in the specification on page 5, lines 22-23, as being an epoxidized polyvinyl acetate commercially available from Franklin International. Finally, with respect to claim 11, Carbopol 941 and 981 are listed in the specification on page 6, lines 1-3, as being available from B.F. Goodrich.

Further, MPEP 608.01(v) states that "if the product to which the trademark refers is set forth in language that its identity is clear, the examiners are authorized to permit the use of the trademark if it is distinguished from common descriptive nouns by capitalization." Here, the tradenames specified meet the conditions that allow their use. However, Applicants will amend each of these claims to list the manufacturer along with the tradename in order to further satisfy the requirements of Section 608.01(v). Reconsideration of claims 3, 8 and 11 is respectfully requested.

Regarding the Examiner's rejection of claims 1-15 to Reese in view of Manufacturing Technology of Continuous Glass Fibers or to Temple in view of Eichorn, Applicants respectfully traverse the Examiner's rejection. As the Examiner notes in Paragraph 10 of the enclosed Office Action, Reese is directed to a dried chemical treatment known as a sizing composition and does not disclose the use of a thickener such as an acrylic acid polymer thickener. Similarly, as shown Column 1, lines 20-25; Column 3, lines 16-24; and most specifically in Column 8, lines 12-29, the chemical composition of Temple also comprises a sizing composition and, as the Examiner notes, does not contemplate the use of a thickener or peroxide catalyst.

As persons of ordinary skill in the art are aware, and as noted in Reese in Column 1, lines 29-34, the role of a sizing composition is to provide lubrication and protection for filaments and the strand in order to prevent interfilament abrasion during the wet conditions of fiber forming and also during processing conditions for producing products from these strands. Further, as described Temple in Column 1, lines 20-24, the sizing composition also assists the fibers in adhering with the polymer matrix in forming composite materials.

The dried chemical treatment of claim 1 of the present invention, on the other hand, is not a sizing composition. The chemical treatment here, as described on pages 3 and 5, is defined as the resin binder system that is added to a fibrous substrate to form a string binder. As shown on page 4 of the specification, the fibrous substrate may take many forms and comprise many types of materials. Importantly, as shown on page 4, paragraph 2, lines 13-17, the filaments may be coated with a suitable sizing composition prior to treatment with the chemical treatment described in claims 1-15 to form the string binder. (Emphasis added). The string binder is subsequently processed to form a pre-form, co-roved with a reinforcing fiber material to form a multi-end roving product which in turn may be used to make a preform. The preform may then also be combined with a matrix polymer resin to form a reinforced composite part.

Inasmuch as the chemical treatment is used for a different purpose than the sizing composition as described in Reese and Temple, modifications that the Examiner's proposes to add a thickener to Reese or Temple and additionally add a peroxide catalyst to Temple are simply not changes that would be made to a sizing composition. There is simply no need to add a thickener to a sizing composition.

Thus, Applicants respectfully submit that the combination of Reese and Manufacturing Technology of Continuous Glass Fibers, nor Temple in view of Eichorn, do not disclose or suggest a chemical composition that forms a string binder when applied to reinforcing fibers. Reconsideration of claims 1-15 is thus respectfully requested.

Applicants have added claims 16-20 by the foregoing amendment to describe a string binder having the chemical composition taught by the present invention. Applicants respectfully submit that these new claims meet the requirements of patentability and do not constitute new matter. Consideration of claims 16-20 is respectfully requested.

In view of the foregoing amendments and remarks, Applicants submit that claims 1-15 are allowable. The Examiner is invited to telephone the Applicants' undersigned attorney at (248) 223-9500 if any unresolved matters remain.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 3, 8 and 11 as follows:

3. (Amended) The product of claim 1 wherein the emulsified polyester resin is PE412, available from OC Anderson.

8. (Amended) The product of claim 1 wherein the film former is Duracet 675-01, available from Franklin International.

11. (Amended) The product of claim 1 wherein the thickener is chosen from the group consisting of Carbopol 941, Carbopol 981, and mixtures thereof, each available from B.F. Goodrich.

Please add new claims 16-20 as follows:

16. (New) A string binder comprising:
a fibrous substrate; and
a chemical treatment coupled to said fibrous substrate,
said chemical treatment comprising an emulsified polyester
resin, a curing agent, a film former, a thickener polymer, and
water.

17. (New) The string binder of claim 16 further
comprising a sizing composition, wherein said sizing
composition is coupled between said fibrous substrate and said
chemical treatment.

18. (New) The string binder of claim 16, wherein said film former is a vinyl polymer.

19. (New) The string binder of claim 16, wherein said thickener is an acrylic polymer.

20. (New) The string binder of claim 16, wherein said curing agent is a peroxide.